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ABSTRACT

This longitudinal study was conducted to develop and test the Career Path Model. This model was designed to help provide educators and policymakers with a sound basis for making decisions which enhance the retention of quality teachers and recognize the importance of job satisfaction in the extremely critical early years in the profession. Teacher education graduates of Iowa State University (N=411) participated in the study by completing a survey instrument at two points, graduation and 1 year later; 369 of these teachers were measured at an additional point, 5 years following graduation. Results suggest that employment plans at graduation were the strongest predictor of 5-year career paths; those who planned to teach at graduation were more likely to report that they were teaching 5 years later. The results of the study have key implications for teacher preparation and placement of program graduates: (1) it is likely that improving student teaching experience may enhance teacher retention; (2) assistance with placement of new teachers is necessary to help them match career expectations with the right career; and (3) university-based programs for beginning teachers may also provide support and encouragement during the early crucial years. (LL)

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TESTING A CAREER PATH MODEL FOR TEACHERS

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TESTING A CAREER PATH MODEL FOR TEACHERS

INTRODUCTION

Beginning in the 1980s, the teaching profession has come under close scrutiny, and many of the recommendations that have been offered to improve the quality of education have been aimed at improving the quality of our nation's teaching force. Among the issues that have received considerable attention is the need to retain quality teachers. Much has been written on teacher shortages, particularly in given areas, and on teacher quality. In general, if students are to learn more and learn better, these quality teachers must be retained in the profession. The early years of teaching are extremely critical in teacher satisfaction and retention.

PURPOSE

The overarching purpose of this research was to develop and test a longitudinal model to help educators understand why teacher education graduates enter or do not enter teaching and why teachers leave or remain in teaching through the early years following entry. This model, the Career Path Model, was designed to help provide educators and policy makers with a sound basis for making decisions to enhance the retention of quality teachers.

THE CAREER PATH MODEL

The development of the Career Path Model was guided by career choice and development theories, particularly those of Super (1957), Holland (1973) and Krumboltz (1976) (Figure 1). The model draws upon career choice and development theories, especially the work of Super (1980; 1957), and reflects his premises that (a) career development is dynamic, cumulative,

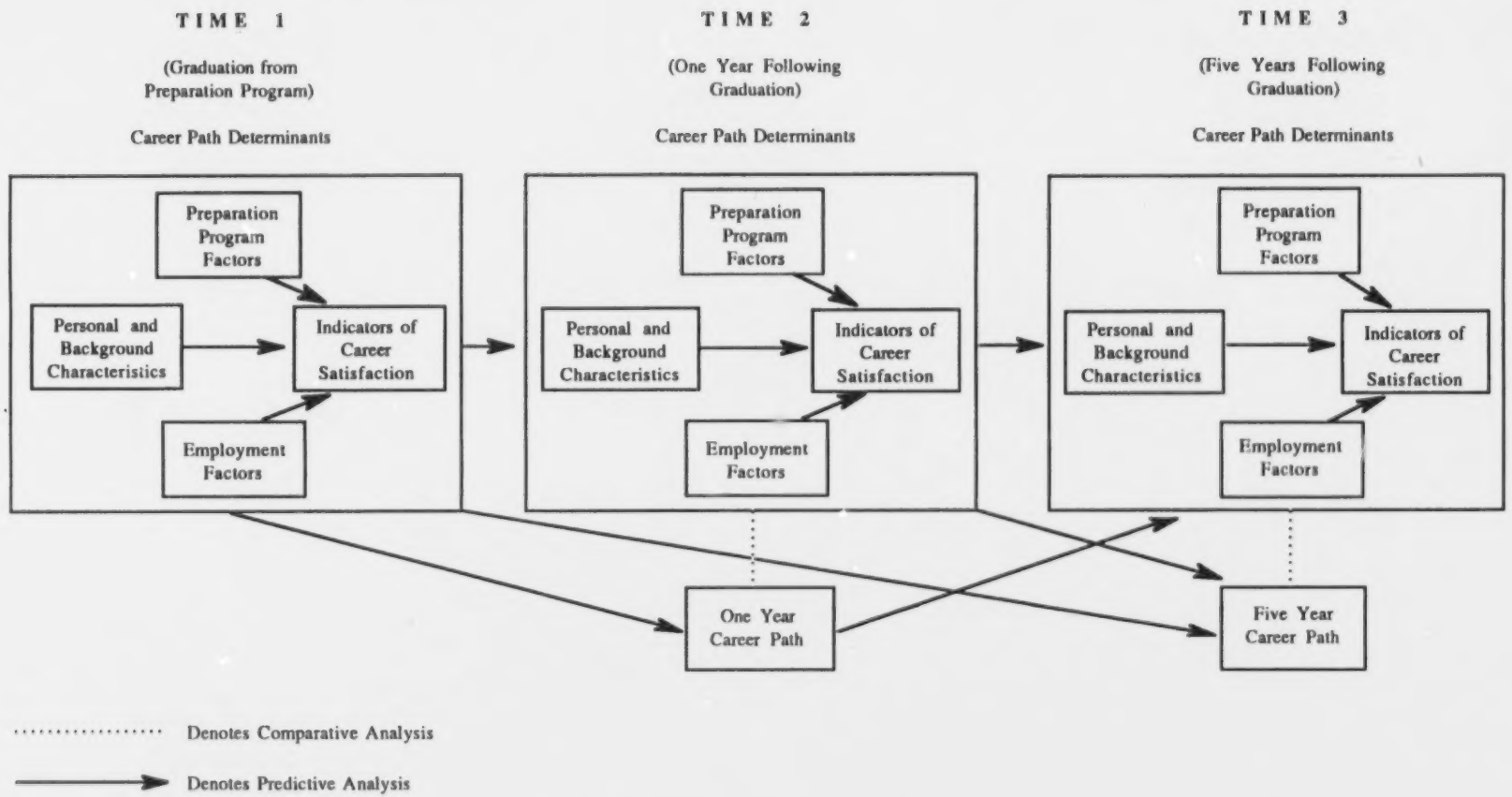

Figure 1. **Career Path Model** as developed and presented in Janet C. Sweeney's dissertation (1987): "Development and testing of a longitudinal model designed to examine the factors that influence the career paths of Iowa State University teacher education graduates"

and evolutionary, and (b) although individuals possess the potential for success and satisfaction in a number of occupations, career satisfaction is determined by congruence between interests and abilities required in a particular occupation and those developed by the individual. The continued interaction of personal and situational factors influences vocational preferences, choices, entry, and changes.

Other theorists have also emphasized the importance of personal and situational factors in career decisions. Based on Holland's Theory of Person-Environment Congruence and the work values identified by Super and Hall (1978), Chapman and Lowther (1982) developed a recursive conceptual model relating teacher personal characteristics, skills, abilities, values, professional achievement, and career satisfaction. Utilizing Krumboltz's Social Learning Theory of Career Decision Making, Chapman (1983) proposed a longitudinal model to explain teacher retention. In developing this model, Chapman suggested that:

> ... to understand a teacher's decision to remain in or leave teaching, it is necessary to take into account (a) the personal characteristics of the teacher, (b) the nature of teacher training and early teaching experience, (c) the degree to which the teacher is socially and professionally integrated into the teaching profession, (d) the satisfaction teachers derive from their career, and (e) the external environmental influences impinging on the teacher's career. (p.47)

The Career Path Model is longitudinal. It includes three measurement points: graduation from preparation program (Time 1), one year following graduation (Time 2), and five years following graduation (Time 3). At each of the three measurement points, Career Path Determinants are measured. These determinants consist of factors within the four major areas: Personal and Background Characteristics, Preparation Program Factors, Employment Factors, and Indicators of Career Satisfaction.

The research on teacher retention and satisfaction provided the rationale for the specific factors, or Career Path Determinants, included in each of the four major areas. Personal and Background Characteristics included four Career Path Determinants: (1) gender, (2) marital status, (3) socio-economic status of parental family, and (4) academic ability/ achievement. The Career Path Determinants included in Preparation Program Factors were (1) student teaching, (2) performance, (3) sense of efficacy, and (4) perceived quality of preparation program. Employment Factors were comprised of six Career Path Determinants: (1) salary, (2) employment expectations, (3) employment reality, (4) employment dissonance, (5) size of employment community, and (6) teaching level. Indicators of Career Satisfaction included four Career Path Determinants: (1) choosing teaching again as a career, (2) job satisfaction, (3) satisfaction with student teaching, and (4) intention to teach. (Refer to Tables 1A through 4A in the Appendix for empirical measures of these constructs.)

The model allows for both predictive and comparative analysis. The solid arrows denote the causal relationships in the model; the dotted lines denote where differences between the Career Path Determinants of teacher education graduates who were following differing career paths can be examined.

PRELIMINARY TESTING OF THE MODEL

In 1980, a comprehensive study was implemented to evaluate and improve the teacher preparation program at Iowa State University. This longitudinal study includes the collection of data from teacher education students and graduates at major points in their preparation and careers. Three of these key data collections points include the semester of

graduation from the program, one year following graduation, and five years following graduation. These data provide information about the attitudes, competencies, personal characteristics, and career paths of the teacher education students and graduates at various stages in their career development. These data were utilized in this research.

The data from 1980, 1981, 1982, and 1983 graduates have been used to test and develop the various aspects of the model. In these preliminary research efforts, the model was generally supported (Sweeney, 1987; Kumlung, 1989). For both of these studies and using two samples, the results of the discriminate analysis procedure indicated that variables from all four major Career Path Model areas (Personal and Background Characteristics, Preparation Program Factors, Employment Factors, and Indicators of Career Satisfaction) contributed significantly to the prediction of One Year Career Path. Preparation Program Factors, Employment Factors, and Indicators of Career Satisfaction contributed significantly to the prediction of Five Year Career Path. The accuracy of prediction at one and five years was relatively high. The model was most accurate in identifying those whose employment at one year (teach, not teach) matched their employment plans of the previous year, and at five years, most accurate in identifying those who never taught and those who entered and stayed in teaching.

METHODS

The present study tested the portions of the Career Path Model that predict One Year Career Path and Five Year Career Path. Testing of the One Year Career Path Model consisted of two analyses: replication and revised model testing. In the replication analysis, essentially the same variables

were used as in the 1987 and 1989 tests. In the revised model testing, additional variables related to performance and program quality were included as Preparation Program Factors. In addition, gender and teaching level were combined and included in the analysis as dummy variables in the area, Personal and Background Characteristics.

Testing of the Five Year Career Path Model consisted of one analysis. For the most part, this analysis included the same variables that were used in previous testing of the Five Year Career Path Model, although some changes were made on the basis of the results of the previous testing of the model. The most notable change was combining gender and teaching level for inclusion as dummy variables in the area of Personal and Background Characteristics.

For all analyses presented in this paper, the number of variables used in the model testings was reduced a priori. Based on theory and preliminary statistical analysis, some variables that were not likely to be useful in the prediction equations, such as those that had similar group means, were intercorrelated, or were redundant, were eliminated.

SAMPLE

One Year Career Path. Data from 411 teacher education graduates of the 1986/1987 through 1988/1989 academic years were used to test the portion of the model that predicts One Year Career Path. This sample was used in both the replication and revised model testing analyses. Graduates who provided data for the study completed survey instruments both at graduation and at one year following graduation.

Five Year Career Path. The Five Year Career Path portion of the model was tested using data collected from 369 teacher education students

who graduated during the 1982/1983 through 1984/1985 academic years. Those who were included in the sample used to test the Five Year Career Path completed survey instruments at graduation, at one year following graduation, and at five years following graduation.

DEPENDENT VARIABLES

One Year Career Path. In testing the portion of the model that predicts One Year Career Path, in both analyses the graduates were classified into four groups:

Teach/Teach	Those who reported at the time of graduation that they planned to enter teaching the academic year following graduation and did teach the academic year following graduation;
Teach/Not teach	Those who reported at the time of graduation that they planned to enter teaching the academic year following graduation, but did not teach the academic year following graduation;
Not teach/Teach	Those who reported at the time of graduation that they did not plan to enter teaching the academic year following graduation, but did teach the academic year following graduation;
Not teach/Not teach	Those who reported at the time of graduation that they did not plan to enter teaching the academic year following graduation and did not teach the academic year following graduation.

Presented in Table 1 is the number of graduates included in each of the One Year Career Path groups.

Table 1
One Year Career Path Groups--Frequency Distribution of Sample

One Year Career Path Group	Number	Valid Percent
Teach/Teach	257	62.5
Teach/Not teach	75	18.2
Not teach/Teach	27	6.6
Not teach/Not teach	52	12.7
Total	411	100.0

Five Year Career Path. Five Year Career Path was analyzed by classifying the teacher education graduates into four groups on the basis of their employment history for the five years since graduating from the preparation program:

Entered and left	Those who entered teaching the first year following graduation, left before five years, and did not reenter;
Entered and stayed	Those who entered teaching either the first, second, or third year following graduation and continued to teach through five years;
Taught intermittently	Those who either entered, left, and reentered teaching during the five years or those who entered the fourth or fifth year and continued to teach through five years;
Never taught	Those who never taught during the five years following graduation.

The frequency distribution of graduates included in each of the four Five Year Career Path groups is presented in Table 2.

Table 2
Five Year Career Path Groups--Frequency Distribution of Sample

One Year Career Path Group	Number	Valid Percent
Never taught	77	20.9
Entered and left	62	16.8
Entered and stayed	180	48.9
Taught intermittently	49	13.3
Not specified	1	****
Total	369	100.0

DATA ANALYSIS

Both One Year and Five Year Career Path Models were tested using discriminant analysis procedures. A step-wise procedure (Wilks') was used in which the variables selected for analysis were allowed to enter one at a time, with an F to enter $\geq$ 1.0 and an F to remove $\leq$ 1.0.

The primary focus for testing One Year Career Path was to determine the accuracy of the model through analysis of the replication and revised models, while the analysis of Five Year Career Path consisted of examining the characteristics of four career path groups. Therefore, the presentation of results for the two main analyses differs slightly. The analyses will be summarized separately at the end of each section.

RESULTS OF ONE YEAR CAREER PATH ANALYSIS

Initial testing of the One Year Career Path Model was done with a sample of 246 Spring 1980 and 1980/1981 academic year ISU teacher education graduates. The replication sample, which consisted of 411 graduates from 1986/1987 through 1988/1989, was used to determine the accuracy of the

prediction model that was developed in the initial testing. The same sample of 411 graduates was used in the revised model testing to determine whether the accuracy of prediction would be improved through the inclusion of additional variables in the analysis.

REPLICATION ANALYSIS

In the initial testing, ten variables were included in the equation to predict One Year Career Path. In the replication analysis, nine variables remained in the equation at the conclusion of the analysis, with six of these the same as those included in the initial testing.

The prediction equation in both the initial and replication analyses included variables from the four major Career Path Model areas of Personal and Background Characteristics, Preparation Program Factors, Employment Factors, and Indicators of Career Satisfaction.

Based on the classification tables obtained as part of the discriminant analysis outputs, in the initial model testing, 70.92 percent of the teacher education graduates were correctly classified, while in the replication analysis, 64.91 percent of all cases were correctly classified. In both analyses, the correct group classification was greatest for those whose actual employment at one year matched their employment plans at the time of graduation and least for those whose actual employment did not match their plans. In the initial testing, the percentage of teacher education graduates correctly classified exceeded the prior probabilities of correct classification for all four groups. In the replication testing, the percentage of graduates who were correctly classified exceeded the prior probabilities in three of the four groups. The group for which classification did not exceed prior probabilities was the teach/not teach

group. Satisfaction with student teaching was the strongest predictor of One Year Career Path in both analyses.

REVISED MODEL TESTING

In the revised model testing, 20 variables were included in the discriminant analysis procedure used to predict One Year Career Path. The ten variables remaining at the conclusion of the discriminant analysis determined the three functions that were derived from the analysis. These ten variables, the step at which each entered the analysis, the Wilks' Lambda value and significance of each, and the standardized discriminant function coefficient, which indicates the extent to which each variable contributed to the discriminatory efficiency of each of the three functions, are presented in Table 3. The strongest predictor of One Year Career Path was satisfaction with the student teaching experience.

The group centroids, which are presented in Table 4, represent the most typical position for each group and explain which groups differ on a function. Group differences are further explained by the item-to-function correlation (see Table 1A in the Appendix) and the group means and standard deviations of each independent variable (see Table 2A in the Appendix).

Examination of the group centroids on the first function reveals that this function primarily differentiated between those who planned to teach and did teach (teach/teach) and those who neither planned to teach nor taught (not teach/not teach) the first year following graduation from the preparation program. The second function in general differentiated between those who did not follow their intended career paths (teach/not teach and not teach/teach) and those who did (teach/teach and not teach/not teach). On the third function, primary discrimination was between those who planned

Table 3

Discriminant Analysis of One Year Career Path Groups--Summary Table of Variables Remaining at Conclusion of Analysis

Variables (measurement time)	Step entered into analysis	Wilks' lambda at conclusion of analysis	Signif-icance	Standardized discriminant function coefficients		
				Function 1	Function 2	Function 3
Satisfaction with student teaching	1	0.84	.00	0.93	0.17	0.35
Secondary female	2	0.81	.00	0.00	0.81	0.39
Perceived adequacy of preparation in planning and delivering instruction	3	0.79	.00	-0.31	0.27	0.70
GPA (combined admission and graduation)	4	0.77	.00	0.04	-0.58	0.42
Elementary female	5	0.75	.00	0.30	0.44	-0.01
Marital status	6	0.73	.00	-0.26	0.17	-0.30
Perceived adequacy of preparation in preparing and using instructional media	7	0.72	.00	-0.08	-0.40	0.19
Satisfaction with cooperating teacher	8	0.71	.00	-0.20	-0.33	-0.18
Choose teaching again	9	0.71	.00	-0.13	0.31	0.30
Employment expectations for opportunities to use special abilities and aptitudes	10	0.70	.00	0.15	0.12	-0.38

Table 4
Discriminant Analysis of One Year Career Path Groups--Canonical Discriminant Functions Evaluated at Group Means

Group	Group Centroids		
	Function 1	Function 2	Function 3
Teach/Teach	0.29	-0.13	0.05
Teach/Not teach	-0.00	0.34	-0.31
Not teach/Teach	-0.41	0.83	0.42
Not teach/Not teach	-1.32	-0.31	-0.02

to teach and did not (teach/not teach) and those who did not plan to teach and did (not teach/teach).

The results of the classification analysis are presented in Table 5. The prior probabilities of correct classification ranged from 6.8 percent to 63.0 percent. Overall, 65.24 percent of the teacher education graduates were correctly classified. The functions were most accurate in identifying those whose actual employment at one year matched their employment plans at the time of graduation; 94.7 percent of those in the teach/teach group and 38.3 percent of those in the not teach/not teach group were correctly classified, compared to 14.8 percent of those in the not teach/teach group and 1.4 percent of those in the teach/not teach group.

In summary, the three functions yielded by ten of the 20 variables included in the discriminant analysis were able to discriminate between teacher education groups in different One Year Career Path groups. These ten variables included variables from each of the four major Career Path Model areas. It is important to note, however, that none of the performance variables was included in the prediction equation. The strongest

Table 5

Discriminant Analysis of One Year Career Path Groups -- Results of Classification Analysis

Group	Prior Probability[b] (pct)	Actual Number of Cases[c]	Predicted Group Membership[a]			
			Teach/ Teach	Teach/ Not teach	Not teach/ Teach	Not teach/ Not teach
Teach/Teach	63.0	249	236 (94.8%)	1 (0.4%)	3 (1.2%)	9 (3.6%)
Teach/Not teach	18.5	74	63 (85.1%)	1 (1.4%)	4 (5.4%)	6 (8.1%)
Not teach/Teach	6.8	27	20 (74.1%)	1 (3.7%)	4 (14.8%)	2 (7.4%)
Not teach/Not teach	11.7	47	25 (53.2%)	1 (2.1%)	3 (6.4%)	18 (38.3%)

[a] Overall, 65.24 percent of all cases were correctly classified.

[b] Based on 384 cases used in analysis; 27 cases were excluded from analysis because data for at least one discriminating variable were missing.

[c] Three hundred ninety-seven (397) cases were used for classification; 14 cases were excluded because data for at least one discriminating variable were missing.

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predictor of One Year Career Path was satisfaction with the student teaching experience. For three of the four groups, the teacher education groups correctly classified exceeded the prior probabilities of correct classification. The exception was those in the teach/not teach group.

COMPARISON OF RESULTS

A comparison of the classification results of the three analyses indicated that accuracy of prediction for the revised model was somewhat greater than that of the replication model, but was less accurate than that of the initial model tested in 1987. Overall, 70.92 percent of the cases were correctly classified in the initial testing of the model, compared to 64.91 percent of the cases in the replication model testing and 65.24 percent of the cases in the revised model testing.

Correct group classification in all three analyses was greatest for those whose actual employment at one year matched their employment plans at graduation and least for those whose actual employment did not match their plans. In the initial testing of the model, the percentage of teacher education graduates correctly classified exceeded the prior probabilities of correct classification in all four groups, while in both the replication and revised testing of the model, the percentage of graduates who were correctly classified exceeded the prior probabilities for three of the four groups. In both cases, the group for which correct classification did not exceed prior probabilities was the teach/not teach group.

Presented in Table 6 are the partial multivariate F values of the variables included at the conclusion of the analysis in the initial, replication, and revised testing of the One Year Career Path Model. In general, the predictive ability of four variables of the initial testing of the

Table 6

Partial Multivariate F Values at Conclusion of Discriminant Analysis of One Year Career Path Groups -- Initial Testing, Replication, and Revised Model Testing

Variables	Initial Model Testing	Replication Model Testing	Revised Model Testing
Satisfaction with student teaching	16.42	11.95	16.28
Employment expectations in challenge and leadership (Employment expectations in leadership and responsibility -- Initial Testing)	4.07	1.07 [b]	NS
Employment expectations in power	4.05	--- [b]	--- [b]
GPA (combined admission and graduation)	3.18	6.32	4.05
Marital status	2.83	2.80	2.19
HSR	2.27	NS	--- [c]
Self-evaluation as a teacher	1.93	NS	NS
Teaching certification level	1.24	4.53	--- [d]
Choose teaching again	1.29	1.64	1.33
Employment expectations for extrinsic rewards (Employment expectations in money, prestige, and advancement -- Initial Testing)	1.14	NS	NS
Gender	NS [a]	5.62	--- [d]
Perceived adequacy of preparation in planning and delivering instruction	NS	4.18 [b]	4.09
Satisfaction with cooperating teacher	NS	2.19	1.91

Table 6 (continued)

Variables	Initial Model Testing	Replication Model Testing	Revised Model Testing
Elementary female			2.62 [e]
Secondary female			4.99 [e]
Perceived adequacy of preparation in preparing and using instructional media			1.84 [e]
Employment expectations for opportunities to use special abilities and aptitudes			1.23 [e]

[a] Not significant.
[b] Comprehensive factor analysis testing resulted in slightly different combination of variables which were used in replication and revised model testing analyses. The variable, Employment expectations in power, which consisted of a single item (Initial Testing) was incorporated into the variable, Employment expectations for challenge and leadership (Replication and Revised Model Testing).
[c] Not included in revised model testing analysis.
[d] Not included as single variable in revised model testing analysis. Gender and teaching certification level were combined and recoded as dummy variables.
[e] New variables included in revised model testing analysis.

Career Path Model was supported in the replication and revised model testings. Of the nine variables common to all three analyses, four were included in the prediction equation of each. These four variables, satisfaction with student teaching, GPA, marital status, and willingness to choose teaching again, were from two of the major Career Path Model areas, Personal and Background Characteristics and Indicators of Career Satisfaction.

Of the nine common variables, six were included in the prediction equations of both the replication and revised model testings. In addition to the four variables mentioned previously, two Preparation Program Factor variables, perceived adequacy of preparation in planning and delivering instruction and satisfaction with cooperating teacher, were included in the replication and revised model testing equations.

For all three analyses, satisfaction with teaching as a career on the basis of student teaching experiences was the strongest predictor of career path group. The prediction equations for all three analyses also included variables from all four major Career Path Model areas: Personal and Background Characteristics, Preparation Program Factors, Employment Factors, and Indicators of Career Satisfaction.

It appears that the new variables included in the revised model testing, particularly those created by combining gender and teaching level, contributed to the explanatory ability of the model. As shown in Table 6, the two variables, elementary female and secondary female, both had relatively high F values in the revised model testing analysis. It should be noted that in the initial and replication model testing, gender and teaching level were included as separate variables in the analyses. In the initial testing, gender was not included in the prediction equation, while

teaching level was included, but at a relatively low F value. In the replication testing, both gender and teaching level were included in the equation and both had relatively high F values. However, it appears that use of the dummy variable approach in the revised model testing allowed for more precise identification of differences between gender/level groups.

Two additional variables had relatively high F values in the revised model testing analysis. These included a Preparation Program Factor, perceived adequacy of preparation in preparing and using instructional media, and an Employment Factor, employment expectations for opportunities to use special abilities and aptitudes.

As indicated by the F values of the variables common to all three analyses, five appeared to contribute differentially to the predictive power of the model. Two of these variables, self-evaluation as a teacher (a Preparation Program Factor) and employment expectations for extrinsic rewards, were included in the prediction equation in the initial testing, but not in the equation of either the replication or revised model testing. A third variable, employment expectations in challenge and leadership, was included in the prediction equation of both the initial and replication model testing, but not in the revised model testing. There were two variables that were not significant in the initial testing, but were significant in both the replication and the revised model testings; these included two Preparation Program Factors, perceived adequacy of preparation in planning and delivering instruction and satisfaction with cooperating teacher.

SUMMARY

In summary, the results of the initial, replication, and revised model testings generally supported both the usefulness and accuracy of the model for predicting One Year Career Path. Moreover, the results of the revised model testing indicated that the accuracy of the model is improved through the inclusion of additional variables in the analysis. However, it appears that more discriminating variables need to be included in the model if its explanatory ability is to be significantly improved.

While it was thought that the addition of performance variables in the analysis of the revised model would contribute to the discriminating power of the model, this was not the case. None of the performance variables was included in the prediction equation at the conclusion of the analysis. An examination of the group means (Table 2A in the Appendix) indicates that teacher education graduates tend to rate their performance in a rather narrow range and at the upper end of the scale. It seems likely that self-ratings of performance might become more meaningful after entry into teaching when the graduates have had more classroom experience and a greater opportunity to reflect on their own teaching behaviors. It also seems likely that a better indication of performance during the preparation program would be provided by including student teacher performance assessment data from supervising and cooperating teachers.

RESULTS OF THE FIVE YEAR CAREER PATH ANALYSIS

The Five Year Career Path sample, which consisted of 369 teacher education graduates, was used to examine the characteristics of the four career path groups. To predict Five Year Career Path, 21 variables were included in the discriminant analysis procedure. The results of the model testing revealed that the model was generally supported. Twelve of the 21

variables contributed significantly to the prediction of Five Year Career Path (Table 7). The variables, presented in the order in which they entered the analysis were: (1) employment plans (Time 1), (2) employment dissonance in extrinsic rewards[1], (3) satisfaction with student teaching (Time 1), (4) employment dissonance in opportunities to use special abilities and aptitudes, (5) willingness to choose teaching again (Time 2), (6) self-evaluation as a teacher (Time 1), (7) perceived adequacy of preparation in planning and delivering instruction (Time 2), (8) employment dissonance in challenge and leadership, (9) rating of program quality (Time 2), (10) perceived adequacy of preparation in classroom management (Time 2), (11) being a female who was certified to teach at the secondary level, and (12) job satisfaction (Time 2). The nine variables that did not significantly contribute to the prediction were: (1) being a female who was certified to teach at the elementary level, (2) being a male who was certified to teach at the secondary level, (3) grade point average at graduation, (4) satisfaction with cooperating teacher (Time 1), perceived adequacy of preparation in (5) interpersonal relationships (Time 2) and (6) testing and evaluating students (Time 2), (7) rating of program quality (Time 1), (8) employment dissonance in opportunities to help and serve others, and (9) income (Time 2).

An examination of the group centroids (Table 8), the item-to-item function correlations (Table A3 in the Appendix), and the group means and standard deviations for the independent variables (Table A4 in the Appendix) provided information on group differences. The first function

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[1] Employment dissonance is defined as the difference between expectations in a job (as measured at graduation) and to what extent the job met those expectations (as measured one year following graduation).

Table 7

Discriminant Analysis of Five Year Career Path Groups--Summary Table of Variables Remaining at Conclusion of Analysis

Variables (measurement time)	Step entered into analysis	Wilks' lambda at conclusion of analysis	Signif-icance	Standardized discriminant function coefficients		
				Function 1	Function 2	Function 3
Employment plans (Time 1)	1	0.82	.00	0.58	0.03	-0.04
Employment dissonance in extrinsic rewards	2	0.78	.00	-0.32	-0.62	0.19
Satisfaction with student teaching (Time 1)	3	0.75	.00	-0.31	-0.21	0.20
Employment dissonance in opportunities to use special abilities and aptitudes	4	0.72	.00	0.32	0.39	0.54
Choose teaching again (Time 2)	5	0.71	.00	-0.30	-0.35	-0.17
Self-evaluation as a teacher (Time 1)	6	0.69	.00	0.28	0.41	-0.19
Perceived adequacy of preparation in planning and delivering instruction (Time 2)	7	0.68	.00	-0.23	-0.45	0.03
Employment dissonance in challenge and leadership	8	0.67	.00	0.10	-0.29	0.59
Rating of program quality (Time 2)	9	0.66	.00	-0.04	0.38	-0.67

Table 7 (continued)

Variables (measurement time)	Step entered into analysis	Wilks' lambda at conclusion of analysis	Signif-icance	Standardized discriminant function coefficients		
				Function 1	Function 2	Function 3
Perceived adequacy of preparation in classroom management (Time 2)	10	0.65	.00	0.08	0.03	0.58
Secondary female	11	0.64	.00	0.07	0.27	0.34
Job satisfaction (Time 2)	12	0.63	.00	0.11	-0.40	0.12

Table 8
Discriminant Analysis of Five Year Career Path Groups--Canonical Discriminant Functions Evaluated at Group Means

Group	Group Centroids		
	Function 1	Function 2	Function 3
Never taught	1.21	-0.22	0.02
Entered and left	0.16	0.53	-0.19
Entered and stayed	-0.44	-0.16	-0.07
Taught intermittently	-0.21	0.22	0.63

primarily differentiated between those who never taught during the five years since graduation and those who entered teaching and stayed or who taught intermittently. Those who entered teaching and stayed or those who taught intermittently through the fifth year following graduation tended to be females who were certified to teach elementary subjects, and those who reported that they felt less well prepared to evaluate student work than did those who never taught. They also were more likely to report that they would be good teachers, were more satisfied with teaching as a career based on their student teaching experiences, and had planned to teach at the time of their graduation.

The second function discriminated between those graduates with a history of consistency in their career paths (either entered teaching and stayed or never taught) or inconsistency (entered teaching but left or taught intermittently). The graduates with the inconsistent employment histories tended to be females who were certified at the secondary level, felt less adequately prepared to plan and deliver instruction, reported that their expectations for financial rewards were not being met, expressed

a lower level of satisfaction with their first job, and were less likely to choose teaching as a career again.

Within the third function, those who taught intermittently differed from those who entered and left in that those who taught intermittently reported a higher level of dissonance between job expectations and the extent to which they were met and a lower level of income. They felt more adequately prepared to manage a classroom, but gave lower comparative ratings to the quality of the teacher education program.

Based on partial multivariate F values calculated for each of the 21 variables at the conclusion of the analysis (Table 3A in the Appendix), three variables appear to provide an explanation of the predictive power of the model. There were significant differences among the groups with respect to employment plans at graduation, with those who had never taught and those who entered teaching and left being more likely to not plan to teach, while those who entered and stayed and those who taught intermittently planned to teach following graduation. Those who taught intermittently and those who entered teaching and left expressed a higher level of dissonance related to financial rewards. Finally, those who had never taught reported the least satisfaction with teaching as a career based on their student teaching experiences.

Overall, discriminant analysis correctly identified 59.68 percent of the Five Year Career Path groups (Table 9). The prior probabilities of correct classification ranged from 10.6 percent to 52.1 percent. For three of the four groups, the percentage of teachers correctly classified exceeded the prior probabilities of correct classification. The functions were most accurate in identifying those who had never taught (57.6%) and those who entered teaching and stayed (87.4%).

Table 9

Discriminant Analysis of Five Year Career Path Groups -- Results of Classification Analysis

Group	Prior Probability[b] (pct)	Actual Number of Cases[c]	Predicted Group Membership[a]			
			Never Taught	Entered and Left	Entered and Stayed	Taught Intermittently
Never taught	18.5	59	34 (57.6%)	4 (6.8%)	20 (33.9%)	1 (1.7%)
Entered and left	18.8	58	12 (20.7%)	11 (19.1%)	34 (58.6%)	1 (1.7%)
Entered and stayed	52.1	159	12 (7.5%)	5 (3.1%)	139 (87.4%)	3 (1.9%)
Taught intermittently	10.6	34	3 (8.8%)	0 (0.0%)	30 (88.2%)	1 (2.9%)
Ungrouped cases	--	1	0 (0.0%)	0 (0.0%)	1 (100.0%)	0 (0.0%)

[a] Overall, 59.68 percent of all cases were correctly classified.

[b] Based on 303 cases used in analysis; 66 cases were excluded from analysis because group data were missing (1) or data for at least one discriminating variable were missing (65).

[c] Three hundred eleven (311) cases were used for classification; 58 cases were excluded because data for at least one discriminating variable were missing.

SUMMARY

The results of the analysis, which included variables from the four major Career Path Model areas of Personal and Background Characteristics, Preparation Program Factors, Employment Factors, and Indicators of Career Satisfaction, suggest that Indicators of Career Satisfaction and Employment Factors most strongly influenced the five year career paths of ISU teacher education graduates. Employment plans at graduation was the strongest predictor of Five Year Career Path; those who planned to teach at graduation were more likely to report that they were teaching five years later.

These results have key implications for teacher preparation and placement of program graduates. First, it is likely that improving the student teaching experience may enhance teacher retention. Additional research appears to be needed to determine which factors within the student teaching experience contribute to the decisions of teacher education students to not enter the teaching profession or to leave teaching within the first five years. Second, assistance with placement of new teachers is necessary to help them more closely match their career expectations with the right career. University-based programs for beginning teachers may also provide support and encouragement during those crucial years.

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A P P E N D I X

Table 1A Discriminant Analysis of One Year Career Path Groups--Partial Multivariate F Values and Pooled Within Groups Correlations Between Discriminating Variables and Canonical Discriminant Functions

Table 2A Discriminant Analysis of One Year Career Path Groups--Group Means and Standard Deviations of Independent Variables

Table 3A Discriminant Analysis of Five Year Career Path Groups--Partial Multivariate F Values and Pooled Within Groups Correlations Between Discriminating Variables and Canonical Discriminant Functions

Table 4A Discriminant Analysis of Five Year Career Path Groups--Group Means and Standard Deviations of Independent Variables

Table 1A

Discriminant Analysis of One Year Career Path Groups--Partial Multivariate F Values and Pooled Within Groups Correlations Between Discriminating Variables and Canonical Discriminant Functions

Source of variation (measurement time)	Partial multivariate F value at conclusion of analysis	Item-to-function correlation (pooled)		
		Function 1	Function 2	Function 3
PERSONAL AND BACKGROUND CHARACTERISTICS				
Elementary female	2.62	0.46*	-0.03	-0.04
Secondary female	4.99	-0.26	0.49*	0.29
Secondary male	0.27	-0.24	-0.43*	-0.20
GPA (combined admission and graduation)	4.05	0.07	-0.49*	0.33
Marital status	2.19	-0.01	0.06	-0.21*
PREPARATION PROGRAM FACTORS				
Satisfaction with cooperating teacher	1.91	0.02	-0.23*	0.08
Self-evaluation as a teacher	0.74	0.28*	-0.04	0.03
Perceived adequacy of preparation in planning and delivering instruction	4.09	0.04	0.06	0.63*
Perceived adequacy of preparation in interpersonal relationships	0.17	-0.02	0.10	0.44*
Perceived adequacy of preparation in classroom management	0.12	-0.04	0.06	0.14*
Perceived adequacy of preparation in preparing and using instructional media	1.84	-0.08	-0.34	0.39*
Learning environment performance	0.98	0.29*	0.01	0.07
Teaching behavior performance	0.02	0.21*	0.00	0.12
Rating of program quality	0.46	0.10	0.03	0.41*
EMPLOYMENT FACTORS				
Employment expectations for extrinsic rewards	0.60	-0.03	0.12*	-0.12
Employment expectations for challenge and leadership	0.53	0.19*	0.09	-0.04

Table 1A (continued)

Source of variation (measurement time)	Partial multivariate F value at conclusion of analysis	Item-to-function correlation (pooled)		
		Function 1	Function 2	Function 3
Employment expectations for opportunities to use special abilities and aptitudes	1.23	0.22	0.14	-0.23*
Employment expectations for opportunities to help and serve others	0.22	0.35*	0.01	-0.00
INDICATORS OF CAREER SATISFACTION				
Choose teaching again	1.33	-0.48*	0.23	0.03
Satisfaction with student teaching	16.28	0.84*	-0.01	0.24

Table 2A

Discriminant Analysis of One Year Career Path Groups--Group Means and Standard Deviations of Independent Variables

Source of variation (measurement time)	Teach/Teach		Teach/ Not teach		Not teach/ Teach		Not teach/ Not teach	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
PERSONAL AND BACKGROUND CHARACTERISTICS								
Elementary female	0.60	0.49	0.54	0.50	0.42	0.50	0.24	0.43
Secondary female	0.18	0.39	0.27	0.45	0.50	0.51	0.31	0.47
Secondary male	0.19	0.39	0.18	0.39	0.08	0.27	0.38	0.49
GPA (combined admission and graduation)	3.10	0.44	2.93	0.40	2.92	0.41	3.07	0.48
Marital status	1.24	0.43	1.28	0.45	1.23	0.43	1.24	0.43
PREPARATION PROGRAM FACTORS								
Satisfaction with cooperating teacher	4.49	0.74	4.37	1.11	4.31	1.05	4.49	0.94
Self-evaluation as a teacher	4.53	0.58	4.41	0.60	4.54	0.58	4.27	0.89
Perceived adequacy of preparation in planning and delivering instruction	3.72	0.55	3.59	0.63	3.87	0.52	3.66	0.70
Perceived adequacy of preparation in interpersonal relationships	3.38	0.71	3.26	0.72	3.59	0.56	3.39	0.79
Perceived adequacy of preparation in classroom management	2.85	1.17	2.75	1.05	3.00	1.06	2.87	0.92
Perceived adequacy of preparation in preparing and using instructional media	3.85	0.90	3.59	1.01	3.73	0.78	4.00	0.80
Learning environment performance	8.45	0.92	8.29	0.96	8.56	1.10	7.92	1.38
Teaching behavior performance	8.36	0.94	8.28	1.00	8.25	1.11	8.00	1.26
Rating of program quality	7.10	1.58	6.83	1.87	7.27	1.43	6.49	2.00
EMPLOYMENT FACTORS								
Employment expectations for extrinsic rewards	3.79	0.56	3.87	0.51	3.88	0.72	3.94	0.56
Employment expectations for challenge and leadership	4.17	0.43	4.18	0.52	4.06	0.55	4.07	0.51

Table 2A (continued)

Source of variation (measurement time)	Teach/Teach		Teach/ Not teach		Not teach/ Teach		Not teach/ Not teach	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Employment expectations for opportunities to use special abilities and aptitudes	4.36	0.41	4.39	0.42	4.32	0.30	4.21	0.48
Employment expectations for opportunities to help and serve others	4.45	0.46	4.45	0.47	4.33	0.64	4.16	0.62
INDICATORS OF CAREER SATISFACTION								
Choose teaching again	1.22	0.50	1.35	0.61	1.54	0.65	1.62	0.72
Satisfaction with student teaching	4.53	0.63	4.28	0.80	4.15	0.88	3.51	1.14

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Table 3A

Discriminant Analysis of Five Year Career Path Groups--Partial Multivariate F Values and Pooled Within Groups Correlations Between Discriminating Variables and Canonical Discriminant Functions

Source of variation (measurement time)	Partial multivariate F value at conclusion of analysis	Item-to-function correlation (pooled)		
		Function 1	Function 2	Function 3
PERSONAL AND BACKGROUND CHARACTERISTICS				
Elementary female	0.37	-0.39*	-0.30	-0.10
Secondary female	1.15	0.20	0.33*	0.27
Secondary male	0.14	0.26*	-0.03	-0.15
Graduating grade point average	0.49	-0.09*	0.06	-0.07
PREPARATION PROGRAM FACTORS				
Satisfaction with cooperating teacher (Time 1)	0.32	-0.10	-0.11*	-0.01
Self-evaluation as a teacher (Time 1)	2.92	-0.39*	0.13	-0.13
Perceived adequacy of preparation in planning and delivering instruction (Time 2)	1.66	0.13	-0.24*	-0.08
Perceived adequacy of preparation in interpersonal relationships (Time 2)	0.89	0.08	-0.13*	0.11
Perceived adequacy of preparation in testing and evaluating students (Time 2)	0.86	0.20*	-0.09	0.06
Perceived adequacy of preparation in classroom management (Time 2)	1.35	0.05	-0.11	0.36*
Rating of program quality (Time 1)	0.01	-0.08	-0.07	-0.20*
Rating of program quality (Time 2)	1.97	0.02	0.00	-0.37*
EMPLOYMENT FACTORS				
Employment dissonance in extrinsic rewards	4.46	-0.04	0.71*	0.29
Employment dissonance in challenge and leadership	1.60	0.19	0.14	0.61*

Table 3A (continued)

Source of variation (measurement time)	Partial multivariate F value at conclusion of analysis	Item-to-function correlation (pooled)		
		Function 1	Function 2	Function 3
Employment dissonance in opportunities for using special abilities and aptitudes	1.76	0.21	0.25	0.32*
Employment dissonance in opportunities to help and serve others	0.46	0.04	0.13	0.37*
Income (Time 2)	0.73	0.01	-0.06	-0.22*
INDICATORS OF CAREER SATISFACTION				
Choose teaching again (Time 2)	2.29	-0.37	-0.37*	0.07
Satisfaction with student teaching (Time 1)	1.97	-0.63*	-0.29	0.15
Job satisfaction (Time 2)	1.08	-0.07	-0.58*	-0.23
Employment plans (Time 1)	7.67	0.76*	0.12	-0.11

Table 4A

Discriminant Analysis of Five Year Career Path Groups--Group Means and Standard Deviations of Independent Variables

Source of variation (measurement time)	Never taught		Entered and left		Entered and stayed		Taught intermittently	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
PERSONAL AND BACKGROUND CHARACTERISTICS								
Elementary female	0.30	0.46	0.39	0.49	0.56	0.50	0.44	0.50
Secondary female	0.39	0.49	0.39	0.49	0.24	0.43	0.41	0.50
Secondary male	0.30	0.46	0.23	0.42	0.17	0.38	0.16	0.37
Graduating grade point average	3.13	0.40	3.10	0.35	3.12	0.39	3.09	0.35
PREPARATION PROGRAM FACTORS								
Satisfaction with cooperating teacher (Time 1)	4.43	0.83	4.56	0.96	4.68	0.67	4.59	0.84
Self-evaluation as a teacher (Time 1)	4.14	0.62	4.44	0.57	4.51	0.54	4.44	0.56
Perceived adequacy of preparation in planning and delivering instruction (Time 2)	3.87	0.51	3.71	0.61	3.75	0.51	3.69	0.62
Perceived adequacy of preparation in interpersonal relationships (Time 2)	3.44	0.64	3.22	0.65	3.37	0.61	3.31	0.63
Perceived adequacy of preparation in testing and evaluating students (Time 2)	3.70	0.78	3.62	0.75	3.57	0.72	3.44	0.73
Perceived adequacy of preparation in classroom management (Time 2)	2.91	0.96	2.68	1.20	2.78	1.09	3.03	1.23
Rating of program quality (Time 1)	6.82	1.72	6.98	1.89	7.06	1.80	6.78	1.72
Rating of program quality (Time 2)	7.18	1.60	7.26	1.62	7.16	1.52	6.78	1.39
EMPLOYMENT FACTORS								
Employment dissonance in extrinsic rewards	0.62	1.06	1.10	0.88	0.69	0.90	1.12	1.02
Employment dissonance in challenge and leadership	0.44	0.89	0.27	0.65	0.17	0.67	0.56	1.00

Table 4A (continued)

Source of variation (measurement time)	Never taught		Entered and left		Entered and stayed		Taught intermittently	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Employment dissonance in opportunities for using special abilities and aptitudes	0.52	0.93	0.44	0.67	0.23	0.72	0.52	1.01
Employment dissonance in opportunities for helping and serving others	0.51	0.86	0.46	0.71	0.34	0.69	0.54	0.85
Income (Time 2)	1.77	0.74	1.88	0.71	1.93	0.69	1.69	0.69
INDICATORS OF CAREER SATISFACTION								
Choose teaching again (Time 2)	2.29	0.82	2.35	0.79	2.68	0.59	2.56	0.56
Satisfaction with student teaching (Time 1)	3.88	1.03	4.19	0.91	4.65	0.57	4.53	0.72
Job satisfaction (Time 2)	7.12	2.05	6.42	2.82	7.36	2.06	6.47	2.64
Employment plans (Time 1)	1.62	0.49	1.35	0.48	1.13	0.33	1.19	0.40